

Farmer-managed, on-farm demonstration of the impact of pasture technology on crop and livestock production

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The low rate of adoption of available pasture technology is a major constraint to improving whole-farm profitability. One approach to accelerating adoption is to establish demonstrations under realistic farm management conditions. This paper outlines an ongoing demonstration of the impact of pasture manipulation on crop and animal production in a ley farming system.

Methods

The demonstration is located on the property of Mr. Kevin Jaeschke (aar 440mm. alkaline clay loam pH 7.8) and involves two unreplicated pasture management systems:

Conventional; continuously grazed, spraytopped (Roundup) in spring Innovative; deferred grazing, grass selective herbicide (Fusilade) in winter

The two systems were established on adjacent areas of 1.6 ha, fenced and watered, and stocked with 13 wethers. The pasture treatments were imposed in 1991, the area was cropped to durum wheat in 1992, and the pasture allowed to regenerate in 1993.

Results and discussion

The two systems had a marked effect on pasture, animal and crop production (Table 1).

Table 1. Effect of pasture system on pasture, animal and crop production.

Date	Attribute	Units	Conventional	Innovative
<u>Pasture</u>				
6.3.91	Seed reserve	kg/ha	320	320
17.6.91	Density	seedlings/m ²	587	960
4.9.91	Dry matter	kg medic/ha	564	1473
20.1.92	Seed yield	kg/ha	81	461
<u>Livestock</u>				
autumn 1991	Supplementary feed	kg medic hay/hd kg barley/hd	23 -	73 36
20.1.92	Liveweight	kg/sheep	54	65
<u>Crop</u>				
13.8.92	Take-all	yield loss rating	likely	unlikely
16.1.93	Grain yield	t/ha	1.49	2.85
16.1.93	Grain protein	%	11.1	11.6

The major benefit of the 'innovative' pasture system was higher grain yield due partly to the control of the cereal root disease. Take-all (*Gaeumannomyces graminis*). Other factors contributing to the difference in grain yield may have included soil nitrate, soil water, and weed density however, the isolation of these separate effects was not attempted in this on-farm demonstration. A secondary benefit was improved nutrition (liveweight) of sheep over summer. The results demonstrate the large benefits that can flow from increased pasture management inputs to subsequent cereal crops, and potentially, through higher seed

reserves, to subsequent regenerating pastures. The regenerating pasture and livestock performance will be monitored in 1993 and featured at the Hart Field Day.